NORTH Dakota | Environmental Quality

Be Legendary.™

September 27, 2021

Mr. Adam Dunlop
Director, Regulatory & Technical Services
Midwest AgEnergy, Blue Flint Ethanol
2841 Third Street SW
Underwood, ND 58576

Re: Air Pollution Control
Draft Permit to Construct No. ACP-018132v1.0

Dear Mr. Dunlop:

Pursuant to the Air Pollution Control Rules of the State of North Dakota, the Department of Environmental Quality has reviewed the permit application dated July 16, 2021 to obtain a Permit to Construct for the construction and initial operation of new package boilers at the existing ethanol plant located in McLean County, North Dakota.

Before making final determination on the draft Permit to Construct, the Department is soliciting public comment by means of the enclosed public notice. As indicated in the notice, the public comment period will begin on September 30, 2021 and end on October 30, 2021. The Department's analysis and a draft copy of the Permit to Construct Amendment may be found at https://deq.nd.gov/AQ/PublicCom.aspx.

All comments received will be considered in the final determination concerning issuance of the permit. You will be notified in writing of our final determination.

If you have any questions, please contact me at (701)328-5271 or rThorton@nd.gov.

Sincerely,

for Rhannon Thorton
Environmental Scientist
Division of Air Quality

RTT:saj
Enc:
xc/enc: Dan Fagnant, EPA/R8 (email - fagnant.daniel@epa.gov)
Gail Fallon, EPA/R8 (email - fallon.gail@epa.gov)

NOTICE OF DRAFT
AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT

The North Dakota Department of Environmental Quality (NDDEQ) hereby notifies the public of a draft Air Pollution Control Permit to Construct Amendment for Midwest AgEnergy – Blue Flint Ethanol. Blue Flint Ethanol is an ethanol plant located at 2841 Third Street SW, Underwood, North Dakota. The project involves the construction and initial operation of new package boilers to support facility operations.

Preliminary evaluations made by Department staff indicate that the project will comply with all applicable Air Pollution Control Rules and there will be no significant detrimental effects to air quality.

A 30-day public comment period for the proposed permit will begin September 30, 2021 and end on October 30, 2021. Direct comments, in writing, to the NDDEQ, Division of Air Quality, 4201 Normandy Street, Bismarck, ND 58503-1324 or email AirQuality@nd.gov, Re: Public Comment Permit Number ACP-018132v1.0. Please note that, to be considered, comments submitted by email must be sent to the email address listed; comments sent to any other email address **will not** be considered. Comments must be received by 11:59 PM central time on the last day of the public comment period to be considered in the final permit determination. A public hearing regarding issuance of the permit will be held if a significant degree of public interest exists as determined by the NDDEQ. Requests for a public hearing must be received in writing by the NDDEQ before the end of the public comment period.

The application, Department analysis and draft permit are available for review on the Department website at https://deq.nd.gov/AQ/PublicCom.aspx. A copy of these documents may be obtained by writing to the Division of Air Quality or contacting Rhannon Thorton at (701)328-5271 or by email at rThorton@nd.gov.

Dated this 27th day of September 2021

Jim Semerad
Director
Division of Air Quality

AIR POLLUTION CONTROL PERMIT TO CONSTRUCT

Pursuant to Chapter 23.1-06 of the North Dakota Century Code, and the Air Pollution Control Rules of the State of North Dakota (Article 33.1-15 of the North Dakota Administrative Code), and in reliance on statements and representations heretofore made by the owner designated below, a Permit to Construct is hereby issued authorizing such owner to construct and initially operate the source unit(s) at the location designated below. This Permit to Construct is subject to all applicable rules and orders now or hereafter in effect of the North Dakota Department of Environmental Quality (Department) and to any conditions specified below:

I. **General Information**:

A. **Permit to Construct Number**: ACP-018132 v1.0

B. **Source**:

1. Name: Blue Flint Ethanol, LLC
2. Location: Sec. 17, T145N, R82W
   McLean County, North Dakota
3. Source Type: Ethanol Production Facility
4. Existing Equipment at the Facility: A list of existing equipment can be found in the Title V Permit to Operate No. AOP-28450 v2.0.
5. New Equipment at the Facility:

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Steam generating boiler rated at 183.8 MMBtu/hr fired on natural gas	S90	S90	Low-NOx Burners (LNB)
Steam generating boiler rated at 183.8 MMBtu/hr fired on natural gas	S100	S100	LNB

C. **Owner/Operator (Permit Applicant)**:

1. Name: Blue Flint Ethanol, LLC
2. Address: 2841 Third Street SW
   Underwood, ND 58576
3. Application Date: July 16, 2021

II. **Conditions**: This Permit to Construct allows the construction and initial operation of the above-mentioned new or modified equipment at the source. The source may be operated under this Permit to Construct until a Permit to Operate is issued unless this permit is suspended or revoked. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Environmental Quality and to the conditions specified below.

A. **Emission Limits**: Emission limits from the operation of the source unit(s) identified in Item I.B of this Permit to Construct (hereafter referred to as "permit") are as follows. Source units not listed are subject to the applicable emission limits specified in the North Dakota Air Pollution Control Rules.

Emission Unit Description	EU	EP	Pollutant / Parameter	Emission Limit
Steam generating boiler rated at 183.8 MMBtu/hr fired on natural gas (Db)	S90	S90	NO_x	0.05 lb/MMBtu [A,B]
			CO	0.05 lb/MMBtu
Steam generating boiler rated at 183.8 MMBtu/hr fired on natural gas (Db)	S100	S100	NO_x	0.05 lb/MMBtu [A,B]
			CO	0.05 lb/MMBtu

[A] 30-day rolling average
[B] 40 CFR 60 Subpart Db NO_x limit is 0.20 lb/MMBtu on a 30-day rolling average.

B. **New Source Performance Standards (NSPS)**: The owner/operator shall comply with all applicable requirement of the following NSPS subparts as referenced in Chapter 33.1-15-12 of the North Dakota Air Pollution Control Rules and 40 CFR 60.

1. **40 CFR 60, Subpart Db**: The owner/operator shall comply with all applicable requirements of 40 CFR 60, Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. EU S90 and EU S100 are subject to the requirements of NSPS Db.

C. **Maximum Achievable Control Technology Standards (MACT)**: The permittee shall comply with all applicable requirements of the following MACT subparts as referenced in Chapter 33.1-15-22 of the North Dakota Air Pollution Control Rules and 40 CFR 63.

1) 40 CFR 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters as incorporated into NDAC 33.1-15-22-03, Subpart DDDDD (EU S90 and S100).

D. **EU S90 and EU S100 Nitrogen Oxide (NOx) Emissions**: The owner/operating shall install, calibrate, operate, and maintain equipment for continuously monitoring the NOx emission rate from each stack. The system shall report NOx emissions in units of pounds of NO_X per million Btu heat input (30-day rolling average). The monitoring system shall include a continuous emissions monitor

which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 2.

E. **Fuel Restriction**: EU S90 and EU S100 are restricted to combusting only pipeline quality natural gas.

F. **Emissions Testing**:

1. Initial Testing: Within 180 days after initial startup, the owner/operator shall conduct emissions tests at the emission units listed below using an independent testing firm, to determine the compliance status of the facility with respect to the emission limits specified in Condition II.A. Emissions testing shall be conducted for the pollutant(s) listed below in accordance with EPA Reference Methods listed in 40 CFR 60, Appendix A. Test methods other than those listed below may be used upon approval by the Department.

Emission Unit Description	EP	Pollutant/ Parameter	Number of Runs	Length of Runs	EPA Ref. Method(s)
Steam generating boiler rated at 183.8 MMBtu/hr fired on natural gas (Db)	S90	NO_x	1	30 days	CEMS
		CO	3	1 hour	10
Steam generating boiler rated at 183.8 MMBtu/hr fired on natural gas (Db)	S100	NO_x	1	30 days	CEMS
		CO	3	1 hour	10

A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33.1-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the owner/operator shall follow the procedures and formats in the Department's Emission Testing Guideline.

2. Notification: The owner/operator shall notify the Department using the form in the Emission Testing Guideline, or its equivalent, at least 30 calendar days in advance of any tests of emissions of air contaminants required by the Department. If the owner/operator is unable to conduct the performance test on the scheduled date, the owner/operator shall notify the Department at least five days prior to the scheduled test date and coordinate a new test date with the Department.

3. Sampling Ports/Access: Sampling ports shall be provided downstream of all emission control devices and in a flue, conduit, duct, stack or chimney arranged to conduct emissions to the ambient air.

The ports shall be located to allow for reliable sampling and shall be adequate for test methods applicable to the facility. Safe sampling platforms and safe access to the platforms shall be provided. Plans and specifications showing the size and location of the ports, platform and utilities shall be submitted to the Department for review and approval. This information can be provided with the Notification required under Condition II.F.2.

G. **Construction**: Construction of the above-described facility shall be in accordance with information provided in the permit application as well as any plans, specifications and supporting data submitted to the Department. The Department shall be notified ten days in advance of any significant deviations from the specifications furnished. The issuance of this Permit to Construct may be suspended or revoked if the Department determines that a significant deviation from the plans and specifications furnished has been or is to be made.

Any violation of a condition issued as part of this permit to construct as well as any construction which proceeds in variance with any information submitted in the application, is regarded as a violation of construction authority and is subject to enforcement action.

H. **Startup Notice**: A notification of the actual date of initial startup shall be submitted to the Department within 15 days after the date of initial startup.

I. **Title V Permit to Operate**: Within one year after startup of the units covered by this Permit to Construct, the owner/operator shall submit a permit application to modify the existing Title V Permit to Operate for the facility.

J. **Organic Compounds Emissions**: The owner/operator shall comply with all applicable requirements of NDAC 33.1-15-07 – Control of Organic Compounds Emissions.

K. **Permit Invalidation**: This permit shall become invalid if construction is not commenced within eighteen months after issuance of such permit, if construction is discontinued for a period of eighteen months or more; or if construction is not completed within a reasonable time.

L. **Fugitive Emissions**: The release of fugitive emissions shall comply with the applicable requirements in NDAC 33.1-15-17.

M. **Annual Emission Inventory/Annual Production Reports**: The owner/operator shall submit an annual emission inventory report and/or an annual production report upon Department request, on forms supplied or approved by the Department.

N. **Source Operations**: Operations at the installation shall be in accordance with statements, representations, procedures and supporting data contained in the initial application, and any supplemental information or application(s) submitted

thereafter. Any operations not listed in this permit are subject to all applicable North Dakota Air Pollution Control Rules.

O. **Alterations, Modifications or Changes**: Any alteration, repairing, expansion, or change in the method of operation of the source which results in the emission of an additional type or greater amount of air contaminants or which results in an increase in the ambient concentration of any air contaminant, must be reviewed and approved by the Department prior to the start of such alteration, repairing, expansion or change in the method of operation.

P. **Recordkeeping**: The owner/operator shall maintain any compliance monitoring records required by this permit or applicable requirements. The owner/operator shall retain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report or application. Support information may include all calibration and maintenance records and all original strip-chart recordings/computer printouts for continuous monitoring instrumentation, and copies of all reports required by the permit.

Q. **Nuisance or Danger**: This permit shall in no way authorize the maintenance of a nuisance or a danger to public health or safety.

R. **Malfunction Notification**: The owner/operator shall notify the Department of any malfunction which can be expected to last longer than twenty-four hours and can cause the emission of air contaminants in violation of applicable rules and regulations.

S. **Operation of Air Pollution Control Equipment**: The owner/operator shall maintain and operate all air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

T. **Transfer of Permit to Construct**: The holder of a permit to construct may not transfer such permit without prior approval from the Department.

U. **Right of Entry**: Any duly authorized officer, employee or agent of the North Dakota Department of Environmental Quality may enter and inspect any property, premise or place at which the source listed in Item I.B of this permit is located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules. The Department may conduct tests and take samples of air contaminants, fuel, processing material, and other materials which affect or may affect emissions of air contaminants from any source. The Department shall have the right to access and copy any records required by the Department's rules and to inspect monitoring equipment located on the premises.

V. **Other Regulations**: The owner/operator of the source unit(s) described in Item I.B of this permit shall comply with all State and Federal environmental laws and rules. In addition, the owner/operator shall comply with all local burning, fire, zoning, and other applicable ordinances, codes, rules and regulations.

W. **Permit Issuance**: This permit is issued in reliance upon the accuracy and completeness of the information set forth in the application. Not withstanding the tentative nature of this information, the conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has, or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23.1-06.

X. **Odor Restrictions**: The owner/operator shall not discharge into the ambient air any objectionable odorous air contaminant which is in excess of the limits established in NDAC 33.1-15-16.

Y. **Sampling and Testing**: The Department may require the owner/operator to conduct tests to determine the emission rate of air contaminants from the source. The Department may observe the testing and may specify testing methods to be used. A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33.1-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the owner/operator shall follow the procedures and formats in the Department's Emission Testing Guideline.

FOR THE NORTH DAKOTA DEPARTMENT
OF ENVIRONMENTAL QUALITY

Date_____ By_____
James L. Semerad
Director
Division of Air Quality

Air Quality Effects Analysis
for
Permit to Construct

Applicant:

Blue Flint Ethanol, LLC
2841 Third Street SW
Underwood, ND 58576

Source Location:

Blue Flint Ethanol, LLC
Sec. 17, T145N, R82W
McLean County, ND

Introduction and Background:

Blue Flint Ethanol, LLC (BFE) currently operates under Title V Permit to Operate No. AOP-28450 v2.0, most recently issued on November 7, 2018.

On July 16, 2021, the Department received a permit application for the following new equipment at the facility:

- Two Rentech natural gas-fired package boilers each rated at 183.83 MMBtu/hr

The new package boilers will be utilized to repower the ethanol plant, providing operational flexibility to support facility operations.

Upon completion of the repowering project, BFE will continue to remain a PSD minor source. The ethanol production facility is not a listed source category under §52.21(b)(1)(i)(a), however, the two proposed boilers have a heat input capacity greater than 250 million British thermal units per hour (MMBtu/hr) and are a listed source category under §52.21(b)(1)(i)(a). Due to these circumstances, the entire ethanol production facility is subject to the 250 tons per year (tpy) major source threshold while the boilers are evaluated separately from the entire facility as a "nested" stationary source. The boilers have a major source threshold of 100 tpy for any New Source Review (NSR) regulated pollutant.

The effects this project has on the facility with respect to state and federal air quality regulations are discussed in detail in the following sections. Additionally, potential emissions were quantified as a result of these proposed changes and are addressed in the following sections.

Emission Unit/Emission Point Modifications:
The project will include the installation of the following new equipment:

Process Unit	Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Boiler	Package boiler rated at 183.8 MMBtu/hr fired on natural gas	S90	S90	Low-NO_X burners (LNB)
Boiler	Package boiler rated at 183.8 MMBtu/hr fired on natural gas	S100	S100	LNB

Emissions from the facility are expected to increase due to the installation of the additional package boilers.

Nested Source and Facility-Wide Emissions:

Table 1: Repowering Project Potential Criteria Pollutant Emissions (tons/year)

Pollutant	CO	NO_x	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$
Repowering Project PTE	**80.5**	**80.5**	**9.2**	**8.9**	**8.1**	**8.1**	**8.1**
Nested Source Threshold	100	100	100	100	100	100	100
Nested Source PSD Applicability	No	No	No	No	No	No	No

As seen in Table 1, the boilers do not have a PTE greater than 100 tpy of any NSR regulated pollutant; therefore, the boilers are not a nested major stationary source under §52.21(b)(1)(i)(a).

Table 2: Post-project Potential Criteria Pollutant Emissions (tons/year)

Pollutant	CO	NO_x	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$
Existing Facility PTE	**69.1**	**37.4**	**45**	**125**	**45**	**35**	**30.9**
Existing Facility PTE + Repowering Project PTE	**149.6**	**117.9**	**54.5**	**133.4**	**53.3**	**43.1**	**39.0**
PSD Major Source Threshold	250	250	250	250	250	250	250
Entire Source PSD Applicability	No	No	No	No	No	No	No

As seen in Table 2, the post-project facility PTE also does not exceed the 250 tpy threshold, meaning this project does not trigger PSD review.

Table 3: Repowering Project Expected Hazardous Air Pollutant (HAP) Emissions (tons/year)

Pollutant	Maximum Expected Emissions (tons/year)
Hexane[A]	2.76
Other HAPs	0.14
Total Project HAPs	2.90

[A] Highest Single HAP

Table 3 shows the highest single HAP and the total HAP emissions associated with this repowering project.

Table 4: BFE HAP Applicability Evaluation (tons/year)

HAP Pollutant	Highest Single HAP (Acetaldehyde)	Total HAP
Existing Facility PTE	**3.6**	**6.9**
Project PTE	**--**	**2.9**
Post Project PTE	**3.6**	**9.8**
Major Source Threshold	10	25
Major Source Applicability	No	No

Table 4 demonstrates that BFE HAP emissions on do not exceed major source thresholds.

Rules Analysis
Potentially Applicable Rules and Expected Compliance Status:

A. Chapter 33.1-15-01 - General Provisions:

Multiple topics are included in the General Provisions chapter, these include: entry onto premises - authority, variances, circumvention, severability, land use plans and zoning regulations, measurement of air contaminants, shutdown and malfunction of an installation - requirements for notification, time schedule for compliance, prohibition of air pollution, confidentiality of records, enforcement, and compliance certifications.

Expected Compliance

Based on the review of the information provided, the facility is expected to comply with all applicable sections of this rule.

B. Chapter 33.1-15-02 - Ambient Air Quality Standards:

The facility must comply with the Ambient Air Quality Standards (AAQS). Other requirements of this chapter include general prohibitions against harming health, causing damage to plants, animals, other property and visible degradation. In addition to these standards, compliance with the Department's Air Toxics Policy is required.

Expected Compliance

Ambient Air Quality Standards Expected Compliance

In the *Criteria Pollutant Modeling Requirements for a Permit to Construct* memorandum dated October 5, 2014, dispersion modeling is required if potential emissions exceed certain thresholds, shown in the following table. The boilers PTE is less than the corresponding modeling thresholds; therefore, dispersion modeling analysis of criteria pollutants is not required to demonstrate compliance with NAAQS.

Source	NO_x	SO_2	PM_{10}	$PM_{2.5}$
Boilers S90 and S100	80.5	9.2	8.1	8.1
NDDEQ Modeling Threshold[A]	**100**	**100**	**40**	**25**

[A] Thresholds listed are for projects that are not subject to PSD and all emissions vent from stacks with height ≥ 1.5 times nearby building height.

Air Toxics Policy (*Policy for the Control of Hazardous Air Pollutant Emissions in North Dakota*)

The Air Toxics Policy (Policy) establishes guidelines to evaluate hazardous air pollutants (HAPs) emitted into the ambient air (off-property). The evaluation includes a determination of both carcinogenic and non-carcinogenic risks due to the HAPs emissions. The acceptable risk is evaluated by determining the maximum individual carcinogenic risk (MICR) for all HAPs with known or possible carcinogenic effects. MICR results are determined by the following equation:

$$MICR_{Total} = (MC_1 \times URF_1) + (MC_2 \times URF_2) + \cdots (MC_n \times URF_n) \qquad \text{(Eq. 1)}$$

Where:

MC_n = Maximum modeled ambient concentration for HAP "n"
URF_n = Unit Risk Factors for HAP "n"

The calculated MICR is the probability of an individual developing cancer after being exposed to the highest concentration of HAPs over a defined period of time. Only HAPs with known or possible carcinogenic risks are used to calculate the MICR. The MICR threshold stated in the Policy is 1×10^{-5}, which represents a probability of one person out of 100,000 people. The MICR calculated below at approximately 1×10^{-5} is equal to the 1×10^{-5} threshold. Given the conservative input data for both boilers in the Tier 1 procedure and the conservative nature of the MICR threshold, additional Tier 2 or Tier 3 analyses were not necessary and compliance with Air Toxics Policy is expected.

Carcinogenic	Unit Risk Factor ($m^3/\mu g$)	Avg. 70 Year Concentration ($\mu g/m^3$)	MICR [Unit Risk * 70yr Conc]
Lead		1.57E-03	
Benzene	7.80E-06	6.60E-03	5.14E-08
Dichlorobenzene	1.10E-05	3.77E-03	4.15E-08

Carcinogenic	Unit Risk Factor ($m^3/\mu g$)	Avg. 70 Year Concentration ($\mu g/m^3$)	MICR [Unit Risk * 70yr Conc]
Formaldehyde	1.30E-05	2.36E-01	3.06E-06
Hexane		5.65E+00	
Naphthalene	3.40E-05	1.92E-03	6.51E-08
Toluene		1.07E-02	
PAH		2.77E-04	
Arsenic	4.30E-03	6.28E-04	2.70E-06
Beryllium	2.40E-03	3.77E-05	9.05E-08
Cadmium	1.80E-03	3.45E-03	6.22E-06
Chromium		4.40E-03	
Cobalt		2.64E-04	
Manganese		1.19E-03	
Mercury		8.17E-04	
Nickel		6.60E-03	
Selenium		7.54E-05	
		TOTAL	**1 E-05**
		Threshold	1 E-05
		Does Calculated Exceed Threshold?	No

The Hazard Index (HI) calculation incorporates all new HAP emissions with acute and/or chronic health effects to determine both compliance with 1-hour and 8-hour guidelines concentrations. The HI is a sum of all modeled concentrations and guideline concentration ratios, shown in the following equation:

$$Hazard\ Index_{Total} = (MC_1/GC_1) + (MC_2/GC_2) + \cdots (MC_n/GC_n) \qquad \text{(Eq. 2)}$$

Where:

MC_n = Maximum modeled ambient concentration for HAP "n"
GC_n = Guideline Concentrations for HAP "n"

A HI of less than 1 indicates that HAP modeled concentration are less than 1-hour and 8-hour guideline concentrations. The HI of 0.97, calculated below, is less than 1.0 and compliance with the Air Toxics Policy is expected.

Contaminant	1-Hour		8-Hour		Maximum MC/GC
	MC (mg/m^3)	GC (mg/m^3)	MC (mg/m^3)	GC (mg/m^3)	
Benzene	8.24E-05	1.60E-01	5.77E-05	3.19E-02	1.81E-03
Dichlorobenzene	4.71E-05	--	3.30E-05	1.20E+00	2.74E-05
Formaldehyde	2.94E-03	7.37E-03	2.06E-03	--	4.00E-01
n-Hexane	7.07E-02	--	4.95E-02	3.53E+00	1.40E-02

Contaminant	1-Hour		8-Hour		Maximum MC/GC
	MC (mg/m^3)	GC (mg/m^3)	MC (mg/m^3)	GC (mg/m^3)	
Naphthalene	2.39E-05	1.57E+00	1.68E-05	1.05E+00	1.60E-05
PAH	3.46E-06	--	2.42E-06	--	0.00E+00
Toluene	1.33E-04	--	9.34E-05	1.51E+00	6.20E-05
Arsenic	7.85E-06	--	5.50E-06	2.00E-04	2.75E-02
Beryllium	4.71E-07	--	3.30E-07	1.00E-06	3.30E-01
Cadmium	4.32E-05	--	3.02E-05	2.00E-04	1.51E-01
Chromium	5.50E-05	--	3.85E-05	1.00E-02	3.85E-03
Cobalt	3.30E-06	--	2.31E-06	4.00E-04	5.77E-03
Manganese	1.49E-05	--	1.04E-05	4.00E-03	2.61E-03
Mercury	1.02E-05	--	7.15E-06	5.00E-04	1.43E-02
Nickel	8.24E-05	--	5.77E-05	3.00E-02	1.92E-03
Selenium	9.42E-07	--	6.60E-07	4.00E-03	1.65E-04
Lead	1.96E-05	--	1.37E-05	1.00E-03	1.37E-02
Hazard Index (Sum of MC/GC ratios)					**0.97**
Threshold					1
Does Calculated Exceed Threshold?					No

Based upon the above, emissions from the facility are expected to remain in compliance with the applicable AAQS. In addition, emissions from the facility are expected to comply with the Air Toxics Policy.

C. Chapter 33.1-15-03 - Restriction of Emission of Visible Air Contaminants:

This chapter restricts the amount of visible air contaminants, primarily particulate matter, a source is allowed to emit. Emissions units S90 and S100 must comply with an opacity limit of 20%, with 40% opacity permissible for one six-minute period per hour.

Expected Compliance

Emissions from the existing facility have been found to be well below the 20% opacity standard and emissions from the new boilers are expected to be well below the 20% opacity standard.

D. Chapter 33.1-15-04 – Open Burning Restrictions:

No person may dispose of refuse and other combustible material by open burning, or cause, allow, or permit open burning of refuse and other combustible material, except as provided for in Section 33.1-15-04-02 or 33.1-15-10-02, and no person may conduct, cause, or permit the conduct of a salvage operation by open burning.

Expected Compliance

The facility will not conduct open burning on the property.

E. Chapter 33.1-15-05 - Emission of Particulate Matter Restricted:

This chapter is applicable to any operation, process, or activity from which particulate matter is emitted, except the burning of fuel for indirect heating.

Expected Compliance

The new boilers to be installed will burn pipeline quality natural gas and will not emit a significant amount of particulate matter, therefore the new equipment is expected to comply with the requirements of this chapter.

F. Chapter 33.1-15-06 - Emissions of Sulfur Compounds Restricted:

This chapter applies to any installation in which fuel is burned and the SO_2 emissions are substantially due to the sulfur content of the fuel; and in which the fuel is burned primarily to produce heat. This chapter is not applicable to installations which are subject to an SO_2 emission limit under Chapter 33.1-15-12, Standards for Performance for New Stationary Sources, or installations which burn pipeline quality natural gas.

This chapter does not apply to the facility because the boilers will burn pipeline quality natural gas.

G. Chapter 33.1-15-07 – Control of Organic Compounds Emissions:

This chapter establishes requirements for organic compound facilities and the disposal of organic compounds.

Expected Compliance

The facility will continue to comply with the requirements of this chapter by complying with 40 CFR 60, Subpart VVa and through the operation of the onsite pollution control equipment.

H. Chapter 33.1-15-08 – Control of Air Pollution from Vehicles and Other Internal Combustion Engines:

This chapter restricts the operation of internal combustion engines which emit from any source unreasonable and excessive smoke, obnoxious or noxious gas, fumes or vapor. The emergency generators and fire pump engines are subject to this chapter's requirements.

No internal combustion engines are being installed with this project; therefore, this chapter is not applicable.

I. Chapter 33.1-15-09 – [Repealed]

J. Chapter 33.1-15-10 – Control of Pesticides:

The facility will use contracted services for pesticide application if needed.

K. Chapter 33.1-15-11 – Prevention of Air Pollution Emergency Episodes:

When an air pollution emergency episode is declared by the Department, the facility shall comply with the requirements in Chapter 33.1-15-11 of the North Dakota Air Pollution Control rules. The permittee shall prepare an air pollution abatement strategy in accordance with Chapter 33.1-15-11-04.

L. Chapter 33.1-15-12 - Standards of Performance for New Stationary Sources:

The North Dakota Air Pollution Control Rules incorporate by reference the requirements of 40 CFR Part 60. The facility is subject to the following NSPS:

Subpart A – General Provisions:

Subpart A contains general requirements for plan reviews, notification, recordkeeping, performance tests, reporting, monitoring and general control device requirements.

Expected Compliance

The facility is expected to comply with the general provisions of Subpart A through submission of timely notifications, performance testing, reporting, and following the general control device and work practice requirements under Subpart A. In addition, any changes to the facility after it is built will be evaluated with respect to this subpart as well as others.

Subpart Db – Standards of Performance for Industrial – Commercial – Institutional Steam Generating Units:

The new boilers (EPs S90 and S100) will become subject to NSPS Subpart Db upon start-up of this project.

Expected Compliance

The 40 CFR 60, Subpart Db nitrogen oxides emission limit for natural gas high heat release rate boilers is 0.20 lb/MMBtu on a 30-day rolling average. Each new boiler will be limited to 0.05 lb/MMBtu on a 30-day rolling average to remain under the major source threshold for a nested PSD source under §52.21(b)(1)(i)(a). Compliance will be demonstrated through installation and operation of a NO_x continuous emissions monitoring system (CEMs) on each boiler and following the monitoring, reporting, and recordkeeping requirements as defined in Subpart Db.

M. Chapter 33.1-15-13 – Emission Standards for Hazardous Air Pollutants:

This chapter adopts most the National Emission Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR Part 61. The repowering project is not subject to any subparts under this chapter.

N. Chapter 33.1-15-14 - Designated Air Contaminant Sources, Permit to Construct, Minor Source Permit to Operate, Title V Permit to Operate:

This chapter requires the facility to obtain a Permit to Construct prior to the installation of sources of air pollution. This chapter also applies to Permit to Operate requirements for facilities that have sources of air pollution.

Expected Compliance

The facility has met all requirements necessary to obtain a Permit to Construct. The permittee currently operates under a Title V Permit to Operate. Upon completion of the repowering project, the applicable conditions will be rolled into the Title V Permit to Operate.

O. Chapter 33.1-15-15 - Prevention of Significant Deterioration of Air Quality:

This chapter adopts the federal provisions of the PSD program under 40 CFR §52.21. A facility is subject to PSD review if it is classified as a "major stationary source" under Chapter 33.1-15-15.

BFE is an ethanol production facility and is not a listed source category under §52.21(b)(1)(i)(a). The major source threshold for non-listed sources is 250 tons per year of any NSR regulated pollutant. The two proposed boilers have a heat input capacity greater than 250 million British thermal units per hour (MMBtu/hr) and are a listed source under §52.21(b)(1)(i)(a). Therefore, the boilers are evaluated separately from the facility as a "nested" stationary source and have a major source threshold of 100 tons per year (tpy) combined, for any NSR regulated pollutant.

Table 1 demonstrates that the boilers do not have a PTE greater than 100 tpy of any NSR regulated pollutant; therefore, the boilers are not a nested major stationary source under §52.21(b)(1)(i)(a). Table 2 demonstrates that the post-project facility PTE does not exceed the 250 tpy; therefore, this project does not trigger PSD review for the entire facility.

P. Chapter 33.1-15-16 - Restriction of Odorous Air Contaminants:

This chapter restricts the discharge of objectionable odorous air contaminants which measures seven odor concentration units or greater outside the property boundary.

Expected Compliance

The facility is currently operating in compliance with this chapter and is expected to continue to comply with this chapter.

Q. Chapter 33.1-15-17 – Restriction of Fugitive Emissions:

This chapter restricts fugitive emissions from the facility; specific to particulate matter emissions (fugitive VOCs are regulated under 33.1-15-07).

Expected Compliance

The facility is expected to take reasonable precautions in preventing such fugitive emissions.

R. Chapter 33.1-15-18 – Stack Heights:

This chapter restricts the use of stack heights above good engineering practices (GEP). This chapter also restricts the use of dispersion techniques to affect the concentration of a pollutant in the ambient air.

Expected Compliance

The stacks for the repowering project will not exceed GEP and will not use dispersion techniques to affect the pollutant concentration in the ambient air.

The stack heights for emissions units associated with the repowering project are listed in the following table:

Emission Unit Description	Emission Point (EP)	Stack Height (Feet)
Steam generating boiler rated at 183.8 MMBtu/hr fired on natural gas	S90	75
Steam generating boiler rated at 183.8 MMBtu/hr fired on natural gas	S100	75

S. Chapter 33.1-15-19 – Visibility Protection:

This chapter applies to major stationary sources as defined in NDAC section 33.1-15-15-01. BFE is not a major stationary source and is therefore not subject to the requirements of this chapter.

T. Chapter 33.1-15-20 – Control of Emissions from Oil and Gas Well Production Facilities:

The facility is not an oil or gas well facility and is therefore not subject to the requirements of this chapter.

U. Chapter 33.1-15-21 – Acid Rain Program:

This chapter adopts the acid rain provisions of the Clean Air Act specified under 40 CFR Parts 72-78. BFE is not subject to the acid rain provision as they are not an electric utility.

V. Chapter 33.1-15-22 - Emissions Standards for Hazardous Air Pollutants for Source Categories:

This chapter adopts the 40 CFR Part 63 regulations, also known as the Maximum Achievable Control Technology (MACT) standards, which regulates hazardous air pollutants (HAPs) from regulated source categories. Typically, these standards apply to major sources of air pollution that are a regulated source category. In addition to the major source requirements, some of the regulations have "area source" standards (for non-major sources). Some of the area source standards have not been adopted by the Department and compliance will be determined by the United States Environmental Protection Agency (USEPA) (i.e. 40 CFR 63, Subpart ZZZZ area source provisions have not been adopted by the Department).

National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR 63 Subpart DDDDD):

The new boilers (EPs S90 and S100) will become subject to NESHAPs Subpart DDDDD upon start-up of this project.

Expected Compliance

Boiler tune-ups will be conducted as specified in §63.7540.

W. Chapter 33.1-15-23 – Fees:

This chapter requires a filing fee of $325 for permit to construct applications, plus any additional fees based on actual processing costs. The additional fees based on processing costs will be assessed upon issuance of the draft permit to construct.

The applicant has paid the $325 filing fee and will be required to pay the additional fees associated with the permit processing.

X. Chapter 33.1-15-24 – Standards for Lead-Based Paint Activities:

The repowering project will not perform any lead-based painting and is therefore not subject to this chapter.

Y. Chapter 33.1-15-25 – Regional Haze Requirements:

This chapter is primarily for existing stationary facilities and requires the installation of best available retrofit technology to reduce the potential for adverse visibility impacts in mandatory class I federal areas. This chapter can also apply to any facility determined to

potentially contribute to visibility impairment in mandatory class I federal areas. The repowering project is expected to have no meaningful impact on visibility in mandatory class I federal areas and is therefore not subject to this chapter.

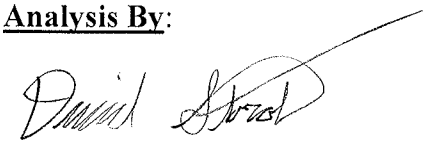
Summary and Recommendations:

A complete review of the proposed project indicates that the repowering project is expected to comply with the applicable federal and state air pollution rules and regulations. Therefore, BFE has met all the requirements for obtaining a Permit to Construct and a draft Permit to Construct will be made available for public comment.

A 30-day public comment period (PCP) will be held from September 30 to October 30, 2021. Upon completion of the PCP, the Department will address all comments applicable to the state and federal air quality rules and regulations and make a final determination regarding the issuance of a Permit to Construct for the repowering project at BFE.

Date of Analysis: DRAFT September 27, 2021

Analysis By:



Rhannon Thorton
Environmental Scientist
Division of Air Quality

RTT:saj